

phosphogluconate pathway enzyme, wherein said maize or soybean phosphogluconate pathway enzyme is selected from the group consisting of:

- (a) glucose-6-phosphate-1-dehydrogenase;
(b) 6-phosphogluconate dehydrogenase;
(c) D-ribulose-5-phosphate-3-epimerase;
(d) ribose-5-phosphate isomerase;
(e) transketolase;
(f) transaldolase; and
(g) phosphoglucoisomerase;

wherein the substantially purified nucleic acid molecule comprises a nucleic acid sequence that hybridizes under conditions of 6.0 X sodium chloride/sodium citrate (SSC) at about 45°C, followed by a wash of 2.0 X SSC at 50°C to a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, 619 and the complements thereof.

2. (Amended) The substantially purified nucleic acid molecule according to claim 1, wherein said substantially purified nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, and 619.

10. (Added) An isolated nucleic acid molecule comprising a sequence that hybridizes under conditions of 6.0 X sodium chloride/sodium citrate (SSC) at about 45°C, followed by a wash of 2.0 X SSC at 50°C to a nucleic acid molecule comprising a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, 619 and

complements thereof.

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11. (Added) The isolated nucleic acid molecule, according to claim 10, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence selected from the group consisting of SEQ ID NOs: 1, 4, 14, 27, 225, 298, 311, 356, 569, and 619.

12. (Added) The isolated nucleic acid molecule according to claim 10, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 1.

13. (Added) The isolated nucleic acid molecule according to claim 10, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 4.

14. (Added) The isolated nucleic acid molecule according to claim 10, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 14.

15. (Added) The isolated nucleic acid molecule according to claim 10, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 27.

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16. (Added) The isolated nucleic acid molecule according to claim 10, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 225.

17. (Added) The isolated nucleic acid molecule according to claim 10, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 298.

18. (Added) The isolated nucleic acid molecule according to claim 10, wherein said isolated nucleic acid molecule comprises a nucleic acid sequence of SEQ ID NO: 311.